

## **Listing of Claims**

This listing of claims will replace all prior versions and listing of the claims in the application:

Claim 1 (Currently amended)      A DNA construct ~~containing~~ encoding a genome of an infectious clone of an RNA virus containing a viral RNA-based expression vector, the genome comprising a hairpin, the hairpin being comprised of a first hairpin sequence fragment and a second hairpin sequence fragment:

- a) the first hairpin sequence fragment corresponding to a gene encoded within the nucleus of ~~the~~ a target plant host, said hairpin ~~sequence being a~~ sequence fragment ~~of being~~ greater than 20 bp 10 bases in length ~~where the sequence fragment~~ and in the sense orientation; and
- b) the second hairpin sequence fragment following the first hairpin sequence fragment, followed by different sequence fragment, derived from the first hairpin sequence fragment and in the reverse complement orientation; ~~with no intervening sequence; or wherein if an intervening sequence is present, then the intervening sequence is of no greater length than the collective length of the two sequence fragments comprising the hairpin.~~

Claim 2. (Currently amended)      A process of producing cytoplasmic inhibition of nuclear gene expression in a target plant host resulting from hairpin RNA expression from an RNA virus genome ~~in~~ by infecting the cytoplasm of the target plant host with an infectious clone of a viral RNA-based expression vector in accordance with claim 1.

Claim 3. (Withdrawn)      A plant host experiencing cytoplasmic inhibition of gene expression following infection with an RNA virus genome containing a hairpin nucleotide sequence in accordance with claim 1.

Claim 4. (Withdrawn) An animal host experiencing cytoplasmic inhibition of gene expression following infection with an RNA virus genome containing a hairpin nucleotide sequence in accordance with claim 1.

Claim 5. (Currently amended) A method for determining nuclear gene function through a process of producing cytoplasmic inhibition of nuclear gene expression in a plant host following infection comprising:  
infecting the plant host with an RNA virus genome of an infectious clone of a viral RNA-based expression vector comprised of a hairpin nucleotide sequence in accordance with claim 1; and  
observing differences between the infected plant host and an uninfected control plant host.

Claim 6. (Currently amended) A hairpin viral RNA-based expression ~~sequence~~ vector in accordance with claim 1 comprising a tobacco mosaic virus.

Claim 7. (Currently amended) A hairpin viral RNA-based expression ~~sequence~~ vector in accordance with claim 1 comprising a barley stripe[d] mosaic virus genome.

Claim 8. (Currently amended) A viral RNA-based expression vector or genome of a viral RNA-based expression vector in accordance with claim 1 for producing cytoplasmic inhibition of nuclear gene expression in a target plant host ~~gene silencing applications~~, comprising a ~~very short, yet highly active gene silencing inducer, such as said~~ hairpin sequence of about 40-60 bp, ~~wherein said virus vector exhibits improved genetic stability.~~

Claim 9. (Currently amended) A viral RNA-based expression vector as specified in claim 1 that contains a 20-30 nucleotide hairpin sequence for infection of

~~mammalian~~ plant cells and delivery of a hairpin RNA sequence to the cytosol for cytoplasmic gene inhibition.

Claim 10. (Currently amended) A viral RNA-based expression vector as specified in claim 9, derived from the ~~alphavirus, rubivirus~~ viruses that infect monocotyledonous plants and virus that infect dicotyledonous plants ~~families~~.